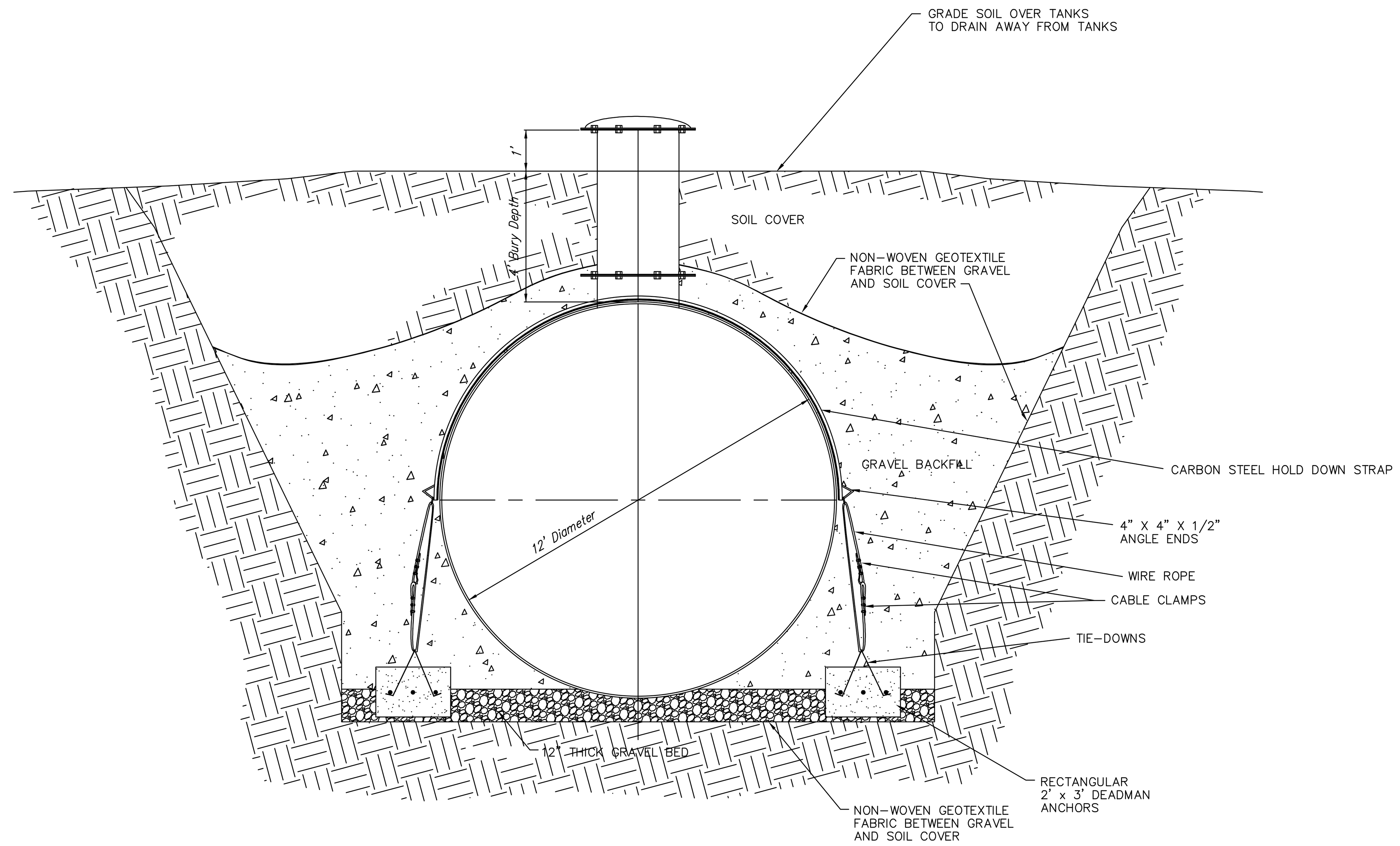
three inches = one foot
one and one-half inch = one foot
one inch = one foot
three-quarters inch = one foot
one-half inch = one foot
three-eighths inch = one foot
one-quarter inch = one foot
one-eighth inch = one foot

INSTALLATION NOTES

1. The bottom of the excavation shall be covered with a minimum of 12 inches of bedding, suitably graded and leveled. Bedding and backfill material surrounding the tank, to a minimum width and depth of 12 inches all around the tank, shall be clean material.
2. Bedding and backfill material shall consist of homogenous pea gravel or crushed stone. Crushed stone shall be capable of passing 100% through a 1/2 inch sieve and no more than 12% by dry weight through a #200 sieve. Pea gravel shall be no larger than 3/4 inch. The materials shall be free of all foreign materials, such as but not limited to, bricks, metals, concrete and plastics.
3. Materials used as backfill shall be placed into the excavation in 12–18 inch vertical lifts, hand probed under and around the vessel after each lift, at least 60% up the vertical height of the tank, avoiding damage to coating. Installing and tamping backfill along the bottom sides of the tank shall ensure that the tank is fully and evenly supported around the bottom quadrant. Backfill around the tank and to a depth of at least one foot over the tank. Rake surface smooth and overlay the entire exposed gravel surface with non–woven geotextile fabric prior to soil cover. Replace soil only as top fill and mound final cover.
4. Tanks shall be air tested at job site. Temporary plugs and thread protectors installed by the manufacturer shall be removed. Apply compatible, non–hardening pipe sealant to internal bushing threads. Permanent metal plugs shall be installed at all unused openings. Plugs used to temporarily seal the tank for the above ground air test, but later removed for pipe installation, shall not be over tightened. Do not cross thread of damage the nylon bushings when replacing plugs or installing required tank piping.
5. Test pressure shall be maintained at, without exceeding, 5 psig while a soap solution is applied to the area of pipe connections and welds. Take necessary precautions during air tests. Do not leave tanks unattended. Avoid standing at the head of the tank, especially while applying air pressure. Use an air–pressure relief valve.
6. Before placing the tank in the excavation, all dirt clods and similar foreign matter shall be cleaned from the tank, and areas of coating damage shall be repaired with touch–up coating kit provided. Clean damaged coating areas through removal of surface rust, dirt, contaminants and disbonded coating prior to application of touch–up coating.
7. Controlled off–loading of the tanks shall be allowed. Equipment to lift the tanks shall be of adequate size to lift and lower the tank without dragging or dropping to ensure there is no damage to the tank or the coating. Tanks shall be carefully lifted and lowered by use of cables or chains of adequate length attached to the lifting lugs provided. A spreader bar shall be used where necessary. Under no circumstances shall chains or slings be used around the tank shell. Follow label instructions including those at tank openings.
8. After tank has been placed in the excavation, in anode is connected by a lead wire, attachment to the tank shall be checked to assure this connection has not been damaged. Where damaged, the connection must be re–established. To assure immediate operation of cathodic protection system, each anode shall be thoroughly saturated with water at time of backfill operations.
9. Buoyancy restraint shall be obtained by using properly designed hold–down straps provided by tank manufacturer in conjuction with concrete deadman anchors. The use of steel cable and/or round bar as hold–down straps on the tank is prohibited. If a metallic hold–down strap is used, a pad of inert insulating di–electric material must be used to insulate the hold–down strap from the tank. The separating pad shall be wider than the hold–down straps, which will prevent direct contract between the straps and the tank shell.
10. Ballasting the tank with water may be necessary. It shall only be potable water and shall not remain in the tank longer than 60 days. During construction, adequately vent all tank spaces. Monitor ballast level frequently to ensure there has been no unaccounted loss of water. Do not over tighten hold–down straps beyond snug and do not re–tighten hold–down straps after ballasting.
11. Prior to backfilling to top of tank, all openings shall be visually inspected to assure that the bushings remain in place. Where flanged openings have been used, isolation of the flange gaskets shall be confirmed with a continuity tester. No current shall pass through the factory installed flange gaskets. Isolation of the fittings is required to assure tank integrity.
12. Each tank shall have a cathodic protection monitoring station installed in such a way so that there will be at least a tank structure lead easily accessible and identifiable at the finish grade and provide easy placement of a reference electrode during monitoring.
13. Disinfection: Two successive set of samples, taken at 24 hour intervals, shall indicate microbiologically satisfactory water as required by KDHE before the facility is placed into operation and accepted by the owner. Disinfection shall be in compliance with AWWA C652.



Contractor shall provide three (3) – 12' Diameter x 50' Long straightshell (56' Length Overall) 44,000 gallon, ASME horizontal underground singlewall carbon steel pressure tanks designed for +150 psi/0 vacuum, 1.0 S.G., 4' burial depth manufactured by Mid America Pipe Fabricating and Supply Co. in Scammon, KS or equal. Tank size shown on drawing sheet C100 may vary up to 2' depending on tank manufacturer and specific tank design required to meet tank storage requirement of 44,000 gallons.

Tanks shall be built of A516 Grade 70 Carbon Steel material for shell and head. Heads shall be 2:1 elliptical. Tanks shall be built to ASME Section VIII, Division I. Tanks shall be spot radiographed on shell and 100% radiographed on heads.

Each tank shall include 1 – 30" manway with riser, lift lugs, deadman straps, hardware and anchors, grounding lug and cathodic anode system. Each tank shall have 1 – 6" 150# flange for pressure vacuum relief valve, 1 – 6" 150# flange for water level monitoring system, 1–6" 150# flange for inlet piping and 1–6" 150# flange for outlet piping. Pressure vacuum relief valve shall extend to 1' height above grade.

Interior and exterior of tanks shall be coated with Tnemec Epoxoline Series F22 coating system or approved equal conforming to NSF/ANSI Ste. 61 for potable water contact. All visible oil, grease, soil, dirt and other soluble contaminants shall be removed in accordance with SSPC–SP1 prior to coating. The surface shall be abrasive blast cleaned to a Near White Finish in accordance with the recommended methods outlined in SSPC–SP10 (NACE No. 2). A minimum angular surface profile of 3.0 mils is required. The finish coat shall be one complete coat of Tnemic Series F22 Epoxoline or approved equal applied at a dry film thickness of 20.0 to 40.0 mils.

Concrete deadmen anchors shall be 3' wide x 2' tall and 56' in length. Anchors shall be reinforced with #4 rebar. Deadman straps shall be carbon steel with liner constructed of di–electric material. Steel deadman straps shall be provided by the tank manufacturer and fabricated to fit the curvature of the tank. The number of deadman straps required per tank shall be determined by the tank manufacturer. The distance between the inside edges of the concrete deadmen anchors shall be equivalent to the tank diameter.

TANK DETAIL
No Scale

Baughman
ENGINEERING | SURVEYING | PLANNING
LANDSCAPE ARCHITECTURE
Baughman Company, P.A.
315 Ellis Wichita, KS 67211
P316-262-7271 F316-262-0149

REVISIONS	DATE

LICENSED 15176 1/25/13 KANSAS PROFESSIONAL ENGINEER

KRAYBILL ARCHITECT
230 LAURA STREET - SUITE 105
WICHITA, KANSAS, 67211
316.263.0721 / WWW.KRAYBILLARCHITECT.COM

PROJECT TITLE	CONSTRUCT BACKUP WATER SYSTEM
PROJECT NUMBER	589A7-12-127
BUILDING NUMBERS	
LOCATION	WICHITA VAM&ROC 5500 E KELLOGG
ISSUE DATE	6-20-2014
CHECKED	R.B.K.
DRAWN	R.M.C.
DRAWING NUMBER	C103
DWG	5 OF 8

Office of Facilities Management

Department of Veterans Affairs